

AN EXPOSURE APPARATUS, EXPOSURE METHOD USING THE SAME,  
AND METHOD OF MANUFACTURE OF CIRCUIT DEVICE

ABSTRACT

A reflective member is fixedly or movably provided  
5 near the pupil plane of a projection optical system with  
which a projection exposure apparatus is equipped. A  
collimated measuring beam with an exposure wavelength is  
incident from the object plane side or image plane side of  
the projection optical system, and the intensity of the  
10 beam reflected by the reflective member is detected  
photoelectrically to measure a value corresponding to the  
attenuation factor (transmissivity or reflectivity) of the  
projection optical system or the variation with time of the  
attenuation factor (transmissivity or reflectivity) of the  
15 projection optical system. In accordance with the  
measurement results, the exposing conditions when a  
photosensitive substrate is exposed are corrected to avoid  
the deterioration of the exposure control precision due to  
the variation of the attenuation factor (transmissivity  
20 variation or reflectivity variation) which is caused in the  
projection optical system and illumination optical system  
of a projection exposure apparatus which uses ultraviolet  
illumination light.